

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Application Review

Issue Date:

Region: Mooresville Regional Office
County: Rowan
NC Facility ID: 8000039
Inspector's Name: Melinda Wolanin
Date of Last Inspection: 03/21/2019
Compliance Code: 3 / Compliance - inspection

Facility Data Applicant (Facility's Name): Meridian Brick LLC - Salisbury Facility Facility Address: Meridian Brick LLC - Salisbury Facility 700 South Long Street East Spencer, NC 28039 SIC: 3251 / Brick and Structural Clay Tile NAICS: 327121 / Brick and Structural Clay Tile Manufacturing Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V			Permit Applicability (this application only) SIP: 02D .0515, .0516, .0521, .0524, and .1111 NSPS: OOO, UUU NESHAP: MACT ZZZZ; 02Q .0317 (MACT Avoidance) PSD: NA PSD Avoidance: NA NC Toxics: 02D .1100 and 02Q .0711 112(r): NA Other:				
Contact Data			Application Data				
Facility Contact Archie Barron Plant Manager (704) 630-4246 PO Box 1249 Salisbury, NC 28145	Authorized Contact Archie Barron Plant Manager (704) 630-4246 PO Box 1249 Salisbury, NC 28145	Technical Contact David McKeown Corporate Environmental Manager (803) 691-3121 5100 Brickyard Road Columbia, SC 29203	Application Number: 8000039.19A Date Received: 05/24/2019 Application Type: Renewal/Modification Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 04034/T22 Existing Permit Issue Date: 12/06/2018 Existing Permit Expiration Date: 11/30/2019				
Total Actual emissions in TONS/YEAR:							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2018	39.51	20.33	13.79	101.43	18.59	26.30	22.68 [Hydrogen fluoride (hydrofluori)]
2017	42.00	22.12	14.70	108.01	19.42	27.96	24.11 [Hydrogen fluoride (hydrofluori)]
2016	45.09	23.28	15.74	115.72	20.58	29.76	25.88 [Hydrogen fluoride (hydrofluori)]
2015	45.14	32.93	5.87	116.04	13.09	8.85	4.60 [Hydrogen fluoride (hydrofluori)]
2014	40.90	29.68	5.05	104.89	11.88	7.29	3.87 [Hydrogen fluoride (hydrofluori)]
Review Engineer: Eric Crump Review Engineer's Signature: _____ Date: _____					Comments / Recommendations: Issue 04034/T23 Permit Issue Date: _____ Permit Expiration Date: _____		

1. Purpose of Application

Meridian Brick LLS – Salisbury Plant (Meridian-Salisbury) is a brick and structural clay tile manufacturing plant located in East Spencer, Rowan County, North Carolina. The facility operates under Title V Permit No. 04034T22 with an expiration date of November 30, 2019. Meridian-Salisbury has applied for renewal of their facility's air quality permit. The renewal application was received on May 24, 2019, or at least six months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

In addition to applying for renewal through permit application No. 8000039.19A, Meridian-Salisbury is completing the second step of a two-step significant modification under 15A NCAC 02Q .0501(b)(2). Under this significant modification:

- A wood-fired kiln (**ID No. 6BK**) was converted to a natural gas-fired kiln that uses propane and No. 2 fuel oil as backup fuels.
- A kiln (**ID No. 5BK**) and No. 5 Making Room (**ID No. 5MR**) with bagfilter (**ID No. BF5MR**) were removed from the permit.
- Two rotary wood dryers (**ID Nos. 5RWD and 6RWD**) that formerly used the kiln exhaust to dry the sawdust are now fired by the existing shared natural gas burner.

Meridian-Salisbury has requested the following changes to be made in this permit renewal:

- Remove various requirements related to the ceasing of wood firing in Kiln No. 6 (**ID No. 6BK**),
- Clarify in permit source descriptions that the No. 5 and No. 6 Rotary Wood Dryers (**ID Nos. 5RWD and 6RWD**) are fired with a natural gas burner independent of the kiln,
- Correct existing Permit Condition 2.1 B.1.c to indicate four bagfilters instead of five controlling the sources indicated in the list of sources and air pollution control device.
- Remove one dried sawdust storage silo (**ID No. 5SILO**) and one baghouse (1,184 square feet of filter area) (**ID No. BF5SILO 1**) from the permit, as they have been dismantled and removed from the site with the rest of the Plant 5 operations.
- Designation of a natural gas-fired emergency generator (**ID No. ES-2**) and a diesel-fired emergency generator (**ID No. ES-3**) as insignificant sources.

2. Facility Description

Meridian-Salisbury owns and operates a brick manufacturing facility in East Spencer, NC that manufactures residential and architectural bricks in five sizes and fifty (50) colors. The plant has been in operation since 1896 and is noted for its 300-foot long tunnel kiln, one of the longest in the world.

3. Facility and Application Chronology (since the last renewal)

December 19, 2014	Permit No. 04034T20 issued to Boral Bricks Inc - Salisbury Plant- (Boral) as a Title V renewal.
May 22, 2015	Boral requests from the Division of Air Quality (DAQ) a 60-day extension of the stack testing requirement in Permit Condition 2.2 B.1.c of their air permit to allow for testing when plant production is closer to maximum production.
June 2, 2015	Compliance inspection conducted by Melinda Wolanin, Mooresville Regional Office (MRO). Facility appeared to be operating in compliance with all requirements.

June 4, 2015	DAQ grants Boral the requested 60-day extension of the stack testing requirement in Permit Condition 2.2 B.1.c of their air permit.
June 16, 2015	DAQ approves stack test protocol for hydrogen chloride (HCl), hydrogen fluoride (HF), total fluoride, and sulfur dioxide (SO ₂) testing of No. 6 brick tunnel kiln (ID No. 6BK), controlled by dry lime injection fabric filter (ID No. DIFF1).
December 11, 2015	DAQ concurs with Boral that a brick cutting machine equipped with a water spray bar is an insignificant activity to be added to the insignificant activity list in the permit during the next permit modification.
June 3, 2016	Compliance inspection conducted by Melinda Wolanin, MRO. Facility appeared to be operating in compliance with all requirements.
September 27, 2016	MRO issues request to Boral for certification of June 23, 2015 stack test results, and December 2015 stack test results, noting that failure to provide the requested materials could result in the initiation of an enforcement action.
December 2, 2016	DAQ issues Boral a 60 day notice of intent to reopen the Title V air quality permit No. 04034T20, and revise permit equations used to calculate hazardous air pollutant (HAP) emissions for the No. 6 wood dust/natural gas-fired brick tunnel kiln (ID No. 6BK), due to the results of the December 2015 stack test.
January 13, 2017	Stationary Source Compliance Branch (SSCB) issues memo to MRO stating the stack testing of No. 6 Kiln at Boral has been reviewed. While the filterable particulate matter (PM), HCl, and HF emissions results were found acceptable, the total fluoride results were <u>not</u> accepted.
February 20, 2017	Air Quality Analysis Branch (AQAB) issues revised memo stating the February 1, 2017 Health Based Compliance Alternative modeling for the Boral plant demonstrates on a source-by-source basis that HF and HCl emissions comply with the Section 112(j) requirements for brick plants.
February 20, 2017	MRO sends letter to Boral stating SSCB had reviewed results of the June 23, 2015 stack tests for No. 6 Brick Tunnel Kiln (ID No. 6BK). The results were not acceptable to demonstrate compliance with 15A NCAC 2Q .0317 and avoidance of 15A NCAC 02D .1109 for HCl and HF or with the lb/day limit for HF per 15A NCAC 2D .1100 and 15A NCAC 2Q .0711.
March 6, 2017	MRO issues Notice of Violation (NOV) to Boral for violation of Specific Condition 2.2 A.1.b in Permit No. 04034T20, "Emission Rates Requiring a Permit and 15 NCAC 02D .1100: Control of Toxic Air Pollutants". The notice also stated MRO is considering sending a Recommendation for Enforcement to the Director of the Division of Air Quality.
March 20, 2017	Boral sends MRO a response to the NOV, stating that when updates to the AERMOD dispersion model are considered, modeling shows the facility in compliance with the acceptable ambient levels in 15A NCAD 02D 1104, with the exception of the daily emission rate from the wood dryer (ID No. 6RWD1). Boral was able to model compliance using a scenario where wood dryer emissions are ducted to the dry

injection fabric filter (**ID No. DIFF1**) stack with no additional control and intends to submit a permit modification to implement this scenario.

April 25, 2017	DAQ receives permit application No. 8000039.17B from Meridian Brick LLC – Salisbury Facility (formerly Boral Bricks Inc - Salisbury Plant) for a minor modification to their permit.
April 28, 2017	DAQ receives permit application No. 8000039.17C from Meridian-Salisbury for an ownership change.
May 23, 2017	Compliance inspection conducted by Melinda Wolanin, MRO. Facility appeared to be operating in compliance with all requirements.
May 30, 2017	AQAB issues memo documenting review of a modeling analysis received April 25, 2017 from Meridian -Salisbury. The facility proposes to burn resinated wood which would emit formaldehyde, which needs modeling as specified in 15A NCAC 02D .1104 for Toxic Air Pollutants (TAPs) emitted above the Toxic Permitting Emission Rates (TPERs) in 15A NCAC 02Q .0711. In addition, the facility updated air dispersion modeling for five other pollutants and requested permit limits based on the updated modeling for all six pollutants. The updated modeling adequately demonstrated compliance on a source-by-source basis.
June 27, 2017	Permit No. 04034T21 issued to Meridian-Salisbury as a Title V ownership change.
June 29, 2017	AQAB issues memo documenting review of a modeling analysis received June 20, 2017 from Meridian-Salisbury in support of actions for a Special Order of Consent (SOC). The modeling adequately demonstrates the daily operational limits comply with the guidelines for TAPs emitted above the TPERs in 15A NCAC 02Q .0711.
January 12, 2018	DAQ receives permit application No. 8000039.18A from Meridian-Salisbury for a modification of Permit No. 04034T21 to convert Kiln No. 6 (ID No. 6BK) to natural gas firing only, with propane or No. 2 fuel oil as backup to resolve the noncompliance issues and to satisfy requirements of a draft SOC.
January 22, 2018	DAQ receives modeling analysis from Meridian-Salisbury.
March 5, 2018	AQAB issues memo documenting review of the modeling analysis received January 22, 2018 from Meridian-Salisbury to support development of a SOC. Permit application No. 8000039.18A triggered modeling requirements to evaluate those toxics whose rates are expected to exceed the levels outlined in 15A NCAC 02Q .0700. The modeling adequately demonstrated compliance, on a source-by-source basis, for all toxics modeled.
March 12, 2018	SOC 2018-001 approved by the Environmental Management Commission (EMC). Under the SOC, Meridian-Salisbury agrees to: (1) limit production from Kiln No. 6 (ID No. 6BK) to 595.0 tons of fired brick per day, (2) upon issuing a permit to convert Kiln No. 6 to natural gas firing, discontinue firing wood in Kiln No. 6 by December 25, 2018, and (3) pay the EMC a civil penalty of \$12,160.
April 17, 2018	Meridian-Salisbury sends letter to DAQ requesting an applicability determination for relocation of a portion of an existing conveyor from Mill Room #3 to crush another material in the clay handling area.

May 10, 2018	Compliance inspection conducted by Melinda Wolanin, MRO. Meridian-Salisbury had not conducted the annual maintenance on the natural gas fired emergency generator (ID No. ES-2) and the diesel fired generator (ID No. ES-3). The facility will receive an NOV. Facility appeared to be operating in compliance with all other requirements.
June 5, 2018	MRO issues NOV to Meridian-Salisbury for failure to conduct maintenance of emergency engines in violation of Air Permit No. 04034T21 Special Conditions Nos. 2.1 H.3.g and 2.1 I.3.g.
June 27, 2018	DAQ issues Applicability Determination No. 3252 to Meridian-Salisbury, concluding that the relocated portion of an existing conveyor would be an insignificant activity to be added to the insignificant activities list during the next permit revision.
December 6, 2018	Permit No. 04034T22 issued to Meridian-Salisbury as a significant Part I modification of a Title V permit pursuant to the two-step modification process under 15A NCAC 02Q .0501(b)(2). This significant modification converts the wood-fired kiln (ID No. 6BK) to only being fired by natural gas with backup fuels of propane and No. 2 fuel oil after December 25, 2018. Kiln (ID No. 5BK) and No. 5 Making Room (ID No. 5MR) with bagfilter (ID No. BF5MR) will be removed from the permit. Also, the two rotary wood dryers (ID Nos. 5RWD and 6RWD) that formerly used the kiln exhaust to dry sawdust will now be fired by the existing shared natural gas burner. This modification also adds two insignificant activities from previous applicability determinations: a portable brick crushing operation (ID No. IES-BCO) and a brick cutting machine (ID No. IES-BCM).
December 20, 2018	Meridian-Salisbury notifies MRO that pursuant to SOC 2018-001, it has permanently ceased firing wood in Kiln No. 6 (ID No. 6BK).
December 28, 2018	DAQ informs Meridian-Salisbury that having satisfied the requirements of SOC 2018-001, the SOC is closed out.
March 21, 2019	Compliance inspection conducted by Melinda Wolanin, MRO. Facility appeared to be operating in compliance with all requirements.
May 24, 2019	DAQ receives permit renewal application No. 8000039.19A from Meridian-Salisbury.
October 15, 2019	SSCB issues memorandum documenting the source test results of Kiln 6 (ID No. 6BK) on July 23, 2019 demonstrated compliance with the applicable regulations for HCl and HF.
March 26, 2020	Email from D. McKeown (Meridian Brick) to J. Twisdale (DAQ) requesting permission to reduce the lime injection rate for the dry lime injection fabric filter (ID No. DIFF1) for Kiln No. 6 (ID No. 6BK) from 80 to 40 pounds per hour (lb/hr), given the reduction in brick production at the facility.
June 12, 2020	Email from J. Twisdale (DAQ) to D. McKeown (Meridian Brick) requesting proof of correlation between lime injection rate, brick production rate, and compliance with permit HF emission limits.

August 21, 2020	Initial teleconference between Meridian Brick and DAQ Permits staff to discuss reducing the dry lime injection rate and obtaining data to justify changing the permit to allow changes in the injection rate.
August 31, 2020	Email from D. McKeown (Meridian Brick) to DAQ Permits staff transmitting lime injection, brick production, and HF emissions data from other Meridian plants that operate dry lime injection fabric filters, along with sample vendor stoichiometric calculations for determining lime feed rates.
September 3, 2019	Teleconference with Meridian Brick and DAQ Permits staff. Tentative agreement reached to revise permit to require that Meridian-Salisbury maintain a ratio of 4.49 pounds per hour of lime injected per ton per hour of brick production, and conduct stack testing prior to the expiration of the permit to better characterize the relationship between the dry lime injection rate and emissions from the kiln.
September 3, 2019	Email from D. McKeown (Meridian Brick) to DAQ Permits staff rescinding their initial request, deciding to maintain the current lime injection rate of 80 lb/hr.
September 25, 2020	Draft permit sent to Meridian-Salisbury and MRO for review and comment.
October 7, 2020	Comments on draft permit received from Meridian-Salisbury.
October 23, 2020	Revisions to draft permit sent to Meridian-Salisbury for review and comment.
October 30, 2020	Comments on revised draft permit received from Meridian-Salisbury.
November 2, 2020	Comments on draft permit received from MRO.
xxx	Region IV of the U.S. Environmental Protection Agency (EPA) notifies DAQ they will/will not target this permit renewal for review.
xxx	Permit renewal notice published, 30-day public notice and comment period begins, and 45-day EPA comment period begins.
xxx	30-day public notice and comment period ends.
xxx	45-day EPA comment period ends.

4. Permit Modifications and Title V Equipment Editor (TVEE) Discussion

The following table summarizes changes to the Meridian-Salisbury permit resulting from the permit renewal:

Page No.	Section	Description of Changes
Cover and throughout	---	<ul style="list-style-type: none"> Updated all dates and permit revision numbers Changed all citations of 15A NCAC 2D to 15A NCAC 02D Changed all citations of 15A NCAC 2Q to 15A NCAC 02Q

Page No.	Section	Description of Changes
3	1	<ul style="list-style-type: none"> Deleted “No. 6 wood” from description of Source ID No. 6BK in table Modified descriptions of rotary wood dryers 5WRD and 6WRD to include natural gas-fired burner Changed source ID No. for “Six dry storage bins” from “SB-STB” to “SB-STB1 through SB-STB6” Rearranged list of NSPS OOO-affected sources for screening and grinding operation ID No. 1GR Deleted dried sawdust storage silo (ID No. 5SILO) and associated baghouse from table
4	1	Deleted emergency generators (ID Nos. ES2 and ES3) from table
5	2.1 A	<ul style="list-style-type: none"> Deleted “wood” and “29,913 square feet of surface area,” from description of brick tunnel kiln (ID No. 6BK) Included both equations for particulate matter limit in limits/standards summary table Added the heading “<u>State Enforceable Only</u>” to summary of toxic air pollutant standards in limits/standards summary table Deleted “<i>***The facility shall discontinue wood firing in the kiln (ID No. 6BK) on or before December 25, 2018.</i>” Updated section to include the most current stipulations for 02D .0515
6	2.1 A.1.d.iii, e 2.1 A.2, 3	<p>Included cyclones with maintenance requirements</p> <p>Updated section to include the most current stipulations for 02D 0.516, and .0521</p>
7	2.1 A.3.c 2.1 A.4	<p>Removed monitoring, recordkeeping, and reporting requirements</p> <p>Deleted section, including 02Q .0504 requirements, and replaced with compliance assurance monitoring requirements (02D .0614)</p>
8	2.1 B 2.1 B.1.c 2.1 B.2.c.ii	<ul style="list-style-type: none"> Included both equations for particulate matter limit in limits/standards summary table Updated section to include the most current stipulations for 02D .0515 and .0521 <p>Changed “five bagfilters” to “four bagfilters”</p> <p>Changed “02D .2601” to “02D .2610”</p>
10	2.1 C 2.1 C.1 2.1 C.2	<p>Added source ID Nos. to table for clarity</p> <p>Updated section to include the most current stipulations for 02D .0516</p> <p>Updated section to include the most current stipulations for 40 CFR 60, Subpart UUU, including reordering of paragraphs a through d</p>
11	2.1 C.2.g 2.1 C.2.h, i	<p>Removed the words “particulate matter”, and changed reference to “40 CFR 60.732, see Section 2.1 D.2.a” to “Section 2.1 C.2.b”</p> <p>Changed “Section 2.1 C.2.a” to “Section 2.1 C.2.b”</p>
12	2.1 D 2.1 D.1.b	<ul style="list-style-type: none"> Updated list of sources comprising sand conveying system No. 1 (ID No. 1SB) to be consistent with list of sources in Section 1 Revised summary of limits and standards table to clarify visible emission limits <p>Changed “SB-C9 - C11” to “SB-C9 through SB-C11”</p>

Page No.	Section	Description of Changes
13	2.1 D.1.e, f 2.1 E	Updated section to include the most current stipulations for 40 CFR 60, Subpart OOO Edited title of section
14	2.1 E.1.e, f	Updated section to include the most current stipulations for 40 CFR 60, Subpart OOO
15-16	2.1 F.1.e, f	Updated section to include the most current stipulations for 40 CFR 60, Subpart OOO
16	2.1 G, H	Deleted sections G and H (emergency engines ES-2 and ES-3 are now insignificant activities)
17	2.2 A.1.b.i 2.2 A.1.b.ii 2.2 A.1.d 2.2 B.1.a	Combined i. into paragraph b Deleted subparagraph starting with the sentence “Wood firing shall be discontinued in the kiln(6BK) on or before December 25, 2018.” Included reference to updated hydrogen fluoride emission factor. Inserted historical date for compliance with 02Q .0317
18	2.2 B.1.b 2.2 B.2.c 2.2 B.2.e.iii 2.2.B.2.h	Replaced testing requirement for brick kiln (ID No. 6BK) with new paragraph b establishing lime feed rate for the dry lime injection fabric filter (ID No. DIFF1). Redesignated paragraphs b through g as paragraphs c through h. Updated emission factors for HF and HCl. Deleted duplicate paragraph Updated paragraph to most current stipulations for reporting requirements
19-29	3	Updated General Conditions to Version 5.4 dated July 20, 2020

The following changes were made to the Title V Equipment Editor (TVEE):

Original Device ID No.	Original Description	New Device ID No.	New Description
6BK	One No. 6 wood/natural gas/propane/No. 2 fuel oil-fired brick tunnel kiln (80 million Btu per hour heat input, 35.6 tons per hour green brick capacity, 27.8 tons per hour fired brick capacity)	6BK	One natural gas/propane/No. 2 fuel oil-fired brick tunnel kiln (80 million Btu per hour heat input, 35.6 tons per hour green brick capacity, 27.8 tons per hour fired brick capacity)
5RWD	One No. 5 rotary wood dryer (5,000 pounds per hour capacity)	5RWD	One No. 5 rotary wood dryer (5,000 pounds per hour capacity) with natural gas fired burner (16.5 million Btu per hour)
6RWD	One No. 6 rotary wood dryer (7,500 pounds per hour capacity)	6WRD	One No. 5 rotary wood dryer (5,000 pounds per hour capacity) with natural gas fired burner (16.5 million Btu per hour)

Original Device ID No.	Original Description	New Device ID No.	New Description
SB-STB	Six dry storage bins [NSPS OOO]	SB-STB1 SB-STB2 SB-STB3 SB-STB4 SB-STB5 SB-STB6	Dry storage bin [NSPS OOO] Dry storage bin [NSPS OOO] Dry storage bin [NSPS OOO] Dry storage bin [NSPS OOO] Dry storage bin [NSPS OOO] Dry storage bin [NSPS OOO]
5SILO	One dried sawdust storage silo	None – source deleted	None – source deleted
ES-2	One natural gas-fired emergency generator (75 kilowatts) located at Plant No. 6	IES-2 (MACT ZZZZ)	No change to description
ES-3	One diesel-fired emergency generator (240 kilowatts) located at Plant No. 6	IES-3 (MACT ZZZZ)	No change to description

5. Description of Changes and Estimated Emissions

As discussed above, in addition to the renewal of this permit, this permitting action also completes the second step of a two-step process for modifying an existing Title V permit pursuant to 15A NCAC 02Q .0501(b)(2) as a significant modification. Under this significant modification:

- A wood-fired kiln (**ID No. 6BK**) was converted to a natural gas-fired kiln that uses propane and No. 2 fuel oil as backup fuels.
- A kiln (**ID No. 5BK**) and No. 5 Making Room (**ID No. 5MR**) with bagfilter (**ID No. BF5MR**) were removed from the permit.
- Two rotary wood dryers (**ID Nos. 5RWD and 6RWD**) that formerly used the kiln exhaust to dry the sawdust are now fired by the existing shared natural gas burner.

This modification, initiated through permit application No. 8000039.18A (see attached J. Twisdale application review dated 12/06/2018), satisfies the requirements of Special Order for Consent 2018-001 which required the modification to address a TAP compliance issue with HF emissions pursuant to 15A NCAC 02D .1100. A detailed discussion of this issue is provided in the application review for Permit No. 04034T22 (J. Twisdale, 12/06/18). This second step application will complete the procedural portion of the significant modification (i.e., 30-day public notice and 45-day EPA review periods).

In addition, the Permittee has requested the following changes to the permit in permit application No. 8000039.19A:

- A correction to Permit Condition 2.1 B.1.c to indicate four bagfilters (instead of five) control emissions from the list of sources and air pollution control device. This is merely a typographical correction and has no impact on emissions.
- Application of compliance assurance monitoring (CAM) rules at 40 CFR Part 64 to Kiln No. 6 (which is discussed in Section 10 of this review).
- Removal of one dried sawdust storage silo (**ID No. 5SILO**) and one baghouse (1,184 square feet of filter area) (**ID No. BF5SILO 1**) from the permit, as they have been dismantled and removed from the site with the rest of the Plant 5 operations.

- Designation of a natural gas-fired emergency generator (**ID No. ES-2**) and a diesel-fired emergency generator (**ID No. ES-3**) as insignificant sources (which is discussed in Section 7 of this review).

Finally, on July 23, 2019, Meridian Salisbury conducted stack testing following the conversion of the brick kiln (**ID No. 6BK**) from wood-firing to natural gas-firing to confirm compliance with the brick MACT avoidance requirements for HF and HCl in the permit. The testing demonstrated compliance with a dry lime injection rate of 80 lb/hr for the fabric filter (**ID No. DIFF1**) with a brick production rate of up to 20 tons per hour (ton/hr)¹. Until now, no specific dry lime injection rate had been included in the permit. A dry lime injection rate of 80 lb/hr will be added to the permit as part of the MACT avoidance condition, along with updated emission factors for calculating hydrogen fluoride (HF) and hydrogen chloride (HCl) emissions.

These are the emission factors for HF and HCl formerly in the Meridian Salisbury permit:

cHFef = Controlled HF Emission Factor (lbHF/ton) = 6.27 E-2 lbHF/ton brick* (90% DIFF control)

cHClef = Controlled HCl Emission Factor (lbHCl/ton) = 7.8 E-3 lbHCl/ton brick* (90% DIFF control)

The October 15, 2019 memo approving the July 23, 2019 test cites the following source test results:

Pollutant	Test Result*	Emissions Limit	Regulation	Compliance
HCl	0.29 lb/hr	---	---	---
	1.27 ton/yr ¹	<10 ton/yr	2Q .0317	Yes
HF	1.2 lb/hr	70.37 lb/hr	2Q .0711	Yes
	28.8 lb/day ¹	714.49 lb/day		
	5.26 ton/yr ¹	<10 ton/yr	2Q .0317	Yes

NOTE: Emission rate assumes 24 hr/day or 8760 hr/yr operation

The new emission factors are derived by dividing the test results cited above for HF and HCl by the test brick firing rate (17.83 ton/hr fired brick), as shown below.

cHFef = (28.8 lb/day) * (day/24 hr conversion factor) / (17.83 ton/hr) = **6.73 E-2 lbHF/ton brick**

cHClef = (0.29 lb/hr) / (17.83 ton/hr) = **1.63 E-2 lbHCl/ton brick**

Because the July 23, 2019 testing was a post-control test at the stack, the above emission factors take into account any control of HF and HCl from the DIFF.

6. Regulatory Review

The facility is subject to the following regulations:

- 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes
- 15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 02D .0521, Control of Visible Emissions
- 15A NCAC 02D .0524, New Source Performance Standards (see Section 8 of this review)
- 15A NCAC 02D .1111: Maximum Achievable Control Technology (see Section 7 of this review)
- 15A NCAC 02D .1100: Control of Toxic Air Pollutants (see Section 11 of this review) [State-enforceable only]

¹ See 10/15/19 Meridian Brick LLC – Salisbury Facility testing approval memorandum from Brent Hall, SSCB, to Bruce Ingle, MRO Supervisor.

- 15A NCAC 02Q .0317, Avoidance Conditions – Limitation to Avoid Being Major for Hazardous Air Pollutants
- 15A NCAC 02Q .0711: Emission Rates Requiring a Permit (see Section 11 of this review)

There have been no changes to emission limits, monitoring, recordkeeping, or reporting requirements for the sources subject to these regulations since the previous permit was issued. The permit has been updated to reflect the most current stipulations for all applicable regulations. Continued compliance is expected.

7. National Emission Standards for Hazardous Air Pollutants (NESHAPS): Maximum and/or Generally Achievable Control Technology (MACT/GACT)

Two emergency generators at the Meridian-Salisbury facility have been subject to the area source requirements of 40 CFR Part 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines: a natural gas-fired emergency generator (**ID No. ES-2**) and a diesel-fired emergency generator (**ID No. ES-3**). This permit renewal does not affect this status. However, Meridian-Salisbury has demonstrated that both emergency generators can be classified as insignificant activities under 15A NCAC 02Q .0503(8) because emissions from neither source would violate any applicable emissions standard, the potential uncontrolled criteria pollutant emissions for each are no more than five tons per year and the potential uncontrolled HAP emissions for each are below 1000 pounds per year. For this reason, these sources have been redesignated as ID Nos. IES-2 and IES-3, respectively. They are not subject to any permit conditions. Continued compliance is expected.

When the D.C. Circuit Court vacated the MACT for Brick & Structural Clay Products Manufacturing (40 CFR 63, Subpart JJJJ) on March 13, 2007, it triggered the requirement for states to issue site-specific MACT standards for brick manufacturers under Section 112(j) of the Clean Air Act (commonly referred to as the MACT “hammer” provision). Instead, Meridian-Salisbury elected to have a MACT avoidance condition pursuant to 15A NCAC 2Q .0317 included in the permit to limit facility HAP emissions to less than 10 tons per year of each HAP, and 25 tons per year of all HAPs combined. Although the U.S. Environmental Protection Agency did finalize 40 CFR 63, Subpart JJJJ on October 26, 2015, the avoidance condition remains in the Meridian-Salisbury permit. As discussed above in Section 5 of this review, the dry lime injection rate of 80 lb/hr will be added to the permit as part of the MACT avoidance condition, along with updated emission factors for calculating hydrogen fluoride (HF) and hydrogen chloride (HCl) emissions. Continued compliance is expected.

8. New Source Performance Standards (NSPS)

A natural gas-fired rotary sand dryer (**ID No. 1RSD**) at the facility is subject to 40 CFR Part 60 Subpart UUU, Standards of Performance for Calciners and Dryers in Mineral Industries.

The following sources are subject to 40 CFR Part 60 Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants:

- Sand hammermill (**ID Nos. 5HM**),
- Bypass screen (**SB-BYSCREEN**)
- Shaker screen (**SB-SS**)
- Six storage bins (**SB-STB1-6**)
- Eighteen conveyors (**ID Nos. SB-C0 through SB-C7** have permit requirements; **SB-C9-C11, SB-C2A, and SB-FC1A through FC6A** do not have permit requirements)
- Primary crusher, 400 tons per hour maximum processing capacity (**ID No. 1PC**)
- Three conveyors, 30 inch wide (**ID Nos. CH-Incline, CH-Crossover and CH-Shuttle**)
- Eight conveyers (**ID Nos. GR-C3, GR-C17-C19, GR-Shuttle, GR-CI, GR-CK, GR-CL**)

- Two finishing screens (**ID Nos. GR-FS11 and FS12**)
- Hammermill (**ID No. GR-HM**)

There have been no changes to emission limits, monitoring, recordkeeping, or reporting requirements for the sources subject to these regulations since the previous permit was issued. The permit has been updated to reflect the most current stipulations for all applicable regulations. Continued compliance is expected.

9. New Source Review (NSR)/Prevention of Significant Deterioration (PSD)

This facility is currently minor for PSD purposes. Rowan County has triggered increment tracking under PSD for PM₁₀, SO₂, nitrogen oxides (NO_x) and PM_{2.5}. This permit renewal and completion of the second step of a two-step modification under 15A NCAC 02Q .0501(b)(2), does not consume or expand increments for any of these pollutants. Continued compliance is expected.

10. Risk Management Program (Clean Air Act, Section 112(r))

40 CFR Part 68 requires stationary sources storing more than threshold quantities of regulated substances to develop a risk management plan (RMP), in accordance with Section 112(r) of the Clean Air Act. The RMP lists potential effects of a chemical accident, steps the facility is taking to prevent an accident, and emergency response procedures to be followed if an accident occurs.

The Meridian-Salisbury facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in the rule. This permit renewal, which completes the second step of a two-step modification under 15A NCAC 02Q .0501(b)(2), does not affect the 112(r) status of the facility. Continued compliance is expected.

10. Compliance Assurance Monitoring (CAM)

40 CFR Part 64 requires development of a continuous CAM plan for a pollutant specific unit if that unit:

- is located at a major source required to obtain a 40 CFR Part 70 or Part 71 permit,
- is subject to a non-exempt emission limitation or standard for a regulated air pollutant,
- uses an active control device to comply with that emission limitation or standard, and
- has a potential pre-control potential emission rate exceeding any of the major source thresholds (100 tons/year for criteria pollutants, 10 tons/year of a single HAP, or 25 tons/year of multiple HAPs).

The previous permit renewal² determined that CAM did not apply to the Meridian-Salisbury facility. In this current renewal application, Meridian-Salisbury requested CAM rules be applied to Kiln No. 6 (**ID No. 6BK**), based on emission increases resulting from the conversion of the kiln from wood-firing to natural gas-firing.

The table shown on the following pages lists all permitted emission sources at Meridian-Salisbury, and associated air pollution control devices and appurtenances. If a source in the table is subject to a Clean Air Act Section 111 or 112 standard, that standard is indicated in bold type in the first column of the table. The last two columns of the table list applicable state standards for each source and explain why CAM does not apply to the source under that state standard. Note that the state standards for visible emissions (15A NCAC 02D .0521) and NC air toxics (15A NCAC 02D .1100 and 02Q .0700) are not included in the table, because these are State-enforceable only regulations, or cover pollutants for which CAM is not applicable.

² See page 5 of review of application No. 8000039.18A by J. Twisdale, 12/06/2018, appended to this review.

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description	Applicable State Regulations	Does CAM Apply?
Brick Tunnel Kilns					
6BK MACT JJJJ	One natural gas/propane/No. 2 fuel oil-fired brick tunnel kiln (80 million Btu per hour heat input, 35.6 tons per hour green brick capacity, 27.8 tons per hour fired brick capacity)	DIFF1	Dry lime injection fabric filter (29,913 square feet of surface area)	02D .0515 02D .0516 02Q .0317	No – potential emissions below permit limit No – Control device not installed for SO2 control Yes – HF emissions exceed MACT avoidance threshold
5RWD	One No. 5 rotary wood dryer (5,000 pounds per hour capacity) with natural gas-fired burner (16.5 million Btu per hour)* *Natural gas burner can fire either rotary dryer No. 5 or No. 6	C5RWD-1	One cyclone (90 inches in diameter)	02D .0515 02D .0516 02Q .0317	No – potential emissions below permit limit No – Control device not installed for SO2 control No – CAM exemption (Part 64 reference) for emission caps
6RWD	One No. 6 rotary wood dryer (7,500 pounds per hour capacity) with natural gas-fired burner (16.5 million Btu per hour)* *Natural gas burner can fire either rotary dryer No. 5 or No. 6	C6RWD-1	One cyclone (90 inches in diameter)	02D .0515 02D .0516 02Q .0317	No – potential emissions below permit limit No – Control device not installed for SO2 control No – CAM exemption (Part 64 reference) for emission caps
Sand Processing and Conveying System – Building 14					
1RSD NSPS UUU	One natural gas-fired rotary sand dryer (10 million Btu per hour, 20.0 tons of wet sand per hour capacity) and	C1RSD	One cyclone (72 inches in diameter)	02D .0516	No – potential emissions below permit limit
1SHM NSPS OOO	One sand hammermill	BF1RSD-1	One baghouse (638 square feet of filter area)		

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description	Applicable State Regulations	Does CAM Apply?
1SB NSPS 000	One sand conveying system No. 1 including: <ul style="list-style-type: none"> • Eighteen 24 inch conveyors (SB-C0 through SB-C7, SB-C9 through SB-C11, SB-C2A, and SB-FC1A-FC6A) • Bypass screen (SB-BYSC) • Shaker screen (SB-SS) • Six dry storage bins (SB-STB1 through SB-STB6) • Ribbon Mixer (SB-RM) 	BF1SB-1	One baghouse (5,245 square feet of filter area)	None	No
Wood Fuel/ Sawdust System					
1WH	One green sawdust grinding and storage operation	C1WH-1	One cyclone (105 inches in diameter)	02D .0515	No – potential emissions below permit limit
5DSS 5HM	One No. 5 dried sawdust shaker screen (7,500 pounds per hour capacity) and One No. 5 dried sawdust hammermill (7,500 pounds per hour capacity)	C5HM BF5DSS-1	One cyclone (60 inches in diameter) One baghouse (383 square feet of filter area)	02D .0515	No – potential emissions below permit limit
6SILO	One dried sawdust storage silo	BF6SILO-1	One baghouse (908 square feet of filter area)	02D .0515	No – potential emissions below permit limit
Clay Handling Equipment (400 tons per hour) – Building 15					
1PC NSPS 000	One primary crusher (400 tons per hour capacity)	N/A	N/A	None	No
CH-Incline NSPS 000	One 30 inch incline conveyor	N/A	N/A	None	No
CH-Crossover NSPS 000	One 30 inch crossover conveyor	N/A	N/A	None	No
CH-Shuttle NSPS 000	One 30 inch shuttle conveyor	N/A	N/A	None	No
Grinding and Screening Operations (300 tons per hour) – Building 11					
1GR NSPS 000	One screening and grinding operation (300 tons per hour)	NA	NA	NA	None

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description	Applicable State Regulations	Does CAM Apply?
	capacity) containing the following NSPS OOO affected sources: <ul style="list-style-type: none"> • 30 inch conveyor (GR-C3) • Finishing screens (GR-FS#11 and GR-FS#12) • Hammermill (GR-HM) • 24 inch conveyors (GR-C17, GR-C19, and GR-Shuttle) • 36 inch conveyors (GR-C18 and GR-CL) • 42 inch conveyors (GR-CI and GR-CK) 				
Making Rooms					
6MR	One brick sand coating operation located in Mill Room No. 6	BF6MR-1	One baghouse (5.245 square feet of filter area)	02D .0515	No – potential emissions below permit limit
Other					
ES-2 GACT ZZZZ	One natural gas-fired emergency generator (75 kilowatts) located at Plant No. 6	N/A	N/A	02D .0516	No – potential emissions below permit limit
ES-3 GACT ZZZZ	One diesel-fired emergency generator (240 kilowatts) located at Plant No. 6	N/A	N/A	02D .0516	No – potential emissions below permit limit

The conversion of Kiln No. 6 from wood-firing to natural gas-firing did result in an increase in potential emissions of HF and HCl from the kiln. This means that the Meridian-Salisbury facility is required to develop and submit a CAM plan for Kiln No. 6. In order to meet the CAM requirements, Meridian-Salisbury has agreed to accept a lime injection rate of 80 lb/hr for the dry injection fabric filter (**ID No. DIFF1**), as discussed in Section of this review. In addition, Meridian-Salisbury has agreed to perform the following daily monitoring activities:

- Monitor the lime feeder setting to ensure the feeder setting is being operated at or above the level that was established during the 7/23/19 test
- Monitor the lime system daily to ensure that there is free flowing lime being fed to the DIFF

Compliance is expected.

11. Facility-wide Toxics Review

The Meridian-Salisbury facility is subject to emission limits for benzene, di(2-ethylhexyl)phthalate, and HF, in accordance with the State-enforceable only 15A NCAC 02D .1100, “Control of Toxic Air Pollutants”. These emission limits were established as a facility-wide worst-case single stack modeling demonstration. The modeling demonstration, approved by the DAQ on March 5, 2018, adequately demonstrated compliance, on a source-by-source basis, for all toxics modeled.

The permit requires Meridian-Salisbury to operate and maintain the facility so that emissions of these listed toxic air pollutants from the sources listed below will comply with the modeled emission rates shown below.

EMISSION SOURCE	TOXIC AIR POLLUTANT	EMISSION LIMIT
Brick Tunnel Kiln (6BK) controlled by dry lime injection fabric filter (DIFF1)	Benzene	9385.71 lb/yr
	Di(2-ethylhexyl)phthalate	714.49 lb/day
	Hydrogen Fluoride	70.37 lb/hr
		714.49 lb/day
Rotary Wood Dryer (6RWD1 or 5RWD1)	Benzene	882.95 lb/yr

In addition, the facility must do the following to ensure compliance with the above limits:

- Operate only one of the wood dryers (**ID No. 5RWD1 or 6RWD1**) at one time.
- Maintain records of operation for the kiln (**ID No. 6BK**), dry limestone fabric filter (**ID No. DIFF1**) [including bypass time], and rotary wood dryers (**ID Nos. 5RWD1 and 6RWD1**) and make those available to DAQ during inspections upon request.
- Use the emission factors and calculations Meridian-Salisbury used with the approved application they submitted DAQ January 12, 2018, and for HF and HCl the approved test results from the July 23, 2019 compliance test to demonstrate ongoing compliance.

This permit renewal does not affect the air toxics compliance status. Based on the most recent inspection, Meridian-Salisbury has been complying with this regulation. Continued compliance is expected.

12. Facility Emissions Review

The table in the header page of this review summarizes emissions from the Meridian-Salisbury facility for the years 2014 through 2018. As shown, the facility is in compliance with most applicable emission requirements. However, HF emissions during that period increased, exceeding the major source threshold for an individual HAP.

As discussed above, Kiln No. 6 (**ID No. 6BK**) was converted to a natural gas-fired unit and ceased burning wood on December 20, 2018. Subsequent source testing of that kiln on July 23, 2019 demonstrated compliance with the applicable regulations for HCl and HF.

Continued compliance is expected.

13. Compliance Status

On March 6, 2017 MRO issued Notice of Violation (NOV) to Meridian-Salisbury for violation of Specific Condition 2.2 A.1.b in Permit No. 04034T20, "Emission Rates Requiring a Permit and 15 NCAC 02D .1100: Control of Toxic Air Pollutants". Meridian-Salisbury responded to the NOV, stating that an updated version of the AERMOD dispersion model showed the facility in compliance using a modeling scenario where wood dryer emissions are ducted to the DIFF1 stack with no additional control.

Following additional modeling analyses, on March 12, 2018 the Environmental Management Commission approved SOC 2018-00 for the Meridian-Salisbury facility. Under the SOC, Meridian-Salisbury agreed to: (1) limit production from Kiln No. 6 (**ID No. 6BK**) to 595.0 tons of fired brick per day until converting Kiln No. 6 to natural gas firing, (2) upon issuing a permit to convert Kiln No. 6 to natural gas firing, discontinue firing wood in Kiln No. 6 by December 25, 2018, and (3) pay the EMC a civil penalty of \$12,160. On December 28, 2018, DAQ informed Meridian-Salisbury that the requirements of SOC 2018-001 were satisfied.

The facility was last inspected on March 21, 2019 by Melinda Wolanin, MRO. The facility appeared to be operating in compliance with all requirements at that time.

14. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also, pursuant to 15A NCAC 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. South Carolina is an affected state within 50 miles of the facility, and the Forsyth County Office of Environmental Assistance and Protection is an affected local program.

15. Other Regulatory Considerations

The following items were not required for Permit Application No. 8000039.19A:

- Professional Engineer's seal
- Zoning consistency determination.

Meridian-Salisbury submitted the required permit fee of \$970.00 to DAQ with the application for the permit modification.

16. Recommendations

DAQ has reviewed the permit application for Meridian Brick LLC - Salisbury Facility located in East Spencer, Rowan County to determine compliance with all procedures and requirements. DAQ has

determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 04034T23.

ATTACHMENT TO REVIEW OF APPLICATION NO. 8000039.19A

Application Review dated 12/06/2018 (J. Tisdale)

**NORTH CAROLINA DIVISION OF
AIR QUALITY****Application Review****Issue Date: 12/06/2018****Region:** Mooresville Regional Office
County: Rowan
NC Facility ID: 8000039
Inspector's Name: Melinda Wolanin
Date of Last Inspection: 05/10/2018
Compliance Code: B / Violation - emissions**Facility Data****Applicant (Facility's Name):** Meridian Brick LLC - Salisbury Facility**Facility Address:**

Meridian Brick LLC - Salisbury Facility

700 South Long Street

East Spencer, NC 28039

SIC: 3251 / Brick And Structural Clay Tile**NAICS:** 327121 / Brick and Structural Clay Tile Manufacturing**Facility Classification: Before:** Title V **After:** Title V**Fee Classification: Before:** Title V **After:** Title V**Permit Applicability (this application only)****SIP:** N/A**NSPS:** N/A**NESHAP:** N/A**PSD:** N/A**PSD Avoidance:** 02Q .0317 (Avoid MACT)**NC Toxics:** 02Q .0711 and 02D .1100**112(r):** N/A**Other:** N/A**Contact Data****Facility Contact**

Archie Barron

Plant Manager

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Salisbury, NC 28145

Authorized Contact

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Technical Contact

David McKeown

Corporate Environmental

Manager

(803) 691-3121

5100 Brickyard Road

Columbia, SC 29203

Application Data**Application Number:** 8000039.18A, .17A & .17B**Date Received:** 01/12/2018**Application Type:** Modification**Application Schedule:** TV SIG 501(b)2 Part 1**Existing Permit Data****Existing Permit Number:** 04034/T21**Existing Permit Issue Date:** 06/27/2017**Existing Permit Expiration Date:** 11/30/2019**Total Actual emissions in TONS/YEAR:**

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2017	42.00	22.12	14.70	108.01	19.42	27.96	24.11 Hydrogen fluoride
2016	45.09	23.28	15.74	115.72	20.58	29.76	25.88 Hydrogen fluoride
2015	45.14	32.93	5.87	116.04	13.09	8.85	4.60 Hydrogen fluoride
2014	40.90	29.68	5.05	104.89	11.88	7.29	3.87 Hydrogen fluoride
2013	33.65	24.51	1.61	86.35	10.91	6.65	3.75 Hydrogen fluoride

Review Engineer: Jeff Twisdale**Review Engineer's Signature:****Date:****Comments / Recommendations:****Issue Permit:** 04034/T22**Permit Issue Date:** 12/06/2018**Permit Expiration Date:** 11/30/2019

ATTACHMENT TO REVIEW OF APPLICATION NO. 8000039.19A

Application Review dated 12/06/2018 (J. Tisdale)

I. Purpose of Application

This permitting action is for modification of an existing Title V permit pursuant to 15A NCAC 02Q .0501(b)(2) {two-step process} as a significant modification. This significant modification converts the wood-fired kiln (ID No. 6BK) to only being fired by natural gas with backup fuels of propane and No. 2 fuel oil after December 25, 2018. Kiln (ID No. 5BK) and No. 5 Making Room (ID No. 5MR) with bagfilter (ID No. BF5MR) will be removed from the permit. Also, the two rotary wood dryers (ID Nos. 5RWD and 6RWD) that have historically utilized the kiln exhaust to dry the sawdust will now be fired by the existing shared natural gas burner since only small amounts of sawdust will be dried for brick coating. This permitting action also adds the existing insignificant activities, including a portable brick crushing operation (ID No. IES-BCO) and a brick cutting machine (ID No. IES-BCM) from previous applicability determinations, as requested. The application (8000039.18A) was received on January 12, 2018 and initially deemed complete.

II. Facility Description

Meridian Brick LLC (Meridian) owns and operates a brick manufacturing facility in East Spencer (Salisbury Plant), NC. The facility manufactures residential and architectural bricks in five (5) sizes and fifty (50) colors. The facility is operating under an existing Title V permit (04034T21) that was issued on June 27, 2017, and under a Special Order by Consent (SOC 2018-001) that was signed on March 12, 2018.

III. History/Background/Application Chronology

The Division of Air Quality (DAQ) sent a request letter dated December 2, 2016 to reopen the permit to the correct the equation utilized to show hazardous air pollutant (HAP) emissions from the facility would be less than the major source thresholds of 10 tons per year (tpy) for each HAP and less than 25 tpy of cumulative HAP. On January 13, 2017, DAQ's Stationary Source Compliance Branch (SSCB) finalized a source test review report (2015-112ST) for HAP emissions as well as toxic air pollutant (TAP) emissions and found hydrogen fluoride (HF) emissions from the kiln (ID No. 6BK) controlled by dry lime injection fabric filter (ID No. DIFF1) and the rotary wood dryers (ID Nos. 6RWD or 5RWD) were in potential noncompliance. Thereafter, Meridian filed a response (8000039.17A) on February 11, 2017 to update the HAP emission calculation equation; however, there was still a TAP compliance issue with HF emissions. As a result, DAQ's Mooresville Regional Office (MRO) issued a Notice of Violation and Recommendation for Enforcement (NOV/NRE) letter on March 6, 2017 for an alleged violation of the TAP emission limit for HF emissions pursuant to 15A NCAC 02D .1100. Meridian responded to the NOV/NRE on March 15, 2017 with some updates to atmospheric dispersion modeling and some proposed corrective actions [e.g. venting the rotary wood dryers (6RWD or 5RWD) to DIFF1] that showed compliance with the TAP limits for HF (see Ms. Nancy Jones' Dispersion Modeling Review dated March 27, 2017). However, Meridian's resulting HF emissions were still estimated to be greater than the HAP major source threshold of 10 tpy. As a result, Meridian filed an application (8000039.17B) to remove the HAP minor limitation while adding resinated wood as a fuel for kiln (ID No. 6BK). The revised TAP atmospheric dispersion modeling was approved by DAQ (see Ms. Nancy Jones' Dispersion Modeling Reviews dated May 30, 2017 and dated June 29, 2017 with further refinement). During the development of the Special Order by Consent (SOC) between DAQ and Meridian that would ensure compliance with the TAP limits for HF, the compliance option of venting the rotary wood dryers (6RWD or 5RWD) to DIFF1 would be an unacceptable engineering option because wet gases from the rotary wood dryers would corrode the stack. On December 5, 2017, Meridian submitted a letter to DAQ containing the compliance option of fuel conversion from wood to natural gas at the facility. Then on January 12, 2018 Meridian submitted a permit application (8000039.18A) and associated dispersion modeling that showed compliance (see Ms. Nancy Jones' Dispersion Modeling Review dated March 5, 2018) with 15A NCAC 02D .1100 (Control of Toxic Air Pollutants (TAPs)) and with the 24-hour standard for HF emissions. The final Special Order by Consent (SOC 2018-001) was signed on March 12, 2018 that detailed history of compliance options the facility contemplated over the last few years and that required compliance on or before December 25, 2018. During the term of the SOC, which expires December 31, 2018, Meridian agreed to limit production for the kiln (ID No. 6BK) to 595 tons of fired brick per day and to keep onsite records to ensure compliance. Contingent upon issuance of this resulting permit for conversion of kiln (6BK) to natural gas firing, Meridian shall discontinue wood firing in the kiln (6BK) on or before December 25, 2018. Therefore, the applications (8000039.17A and .17B) are replaced by application 8000039.18A for processing that will ensure compliance by following SOC 2018-001 and the revised permit.

ATTACHMENT TO REVIEW OF APPLICATION NO. 800039.19A

Application Review dated 12/06/2018 (J. Tisdale)

IV. Permit Modification/Changes

The following table describes the modifications to the current permit 04034T21 as part of the modification process.

Old Page(s)	New Page(s)	Section(s)	Description of Change(s)
All	All	All	Updated dates and permit revision number
Attachment	Attachment	Attachment-Insignificant Activity List	Updated Insignificant Activities by adding Brick Cutting Machine (ID No. IES-BCM), and Portable Brick Crushing Operation (ID No. IES-PBC).
3	3	Section 1 Table	Removed brick kiln (ID No. 5BK) from the permit. Added natural gas/propane/No. 2 fuel oil as a fuel for brick kiln (ID No. 6BK) while noting ** wood shall not be burned after 12/25/2018. Added footnote * noting this a 15A NCAC 02Q .0501(b)(2) modification for kiln (ID No. 6BK), and the Permittee shall file a Title V Air Quality Permit Application on or before 12 months after commencing operation. Updated MACT to GACT ZZZZ for the emergency engines.
5-7	NA	2.1 A.	Removed specific conditions for retired brick kiln (ID No. 5BK).
7	5	2.1 A. Table	Updated the Hazardous Air Pollutant (HAP) major avoidance condition for brick kiln (ID No. 6BK) to limit facility-wide HAP to < 10 tpy for each HAP and < 25 tpy for total HAP.
8-10	5-7	2.1 B. to A.	Moved specific conditions for brick kiln (ID No. 6BK) up in the permit while adding natural gas, propane, No. 2 fuel oil as fuels and noting ** wood shall not be burned after 12/25/2018.
NA	7	2.1 A.4.	Added specific condition 15A NCAC 02Q .0504: Option for Obtaining Construction and Operation Permit for completion of the two-step significant modification process pursuant to 15A NCAC 02Q .0501(b)(2) for brick kiln (ID No. 6BK).
11 – 13	7 – 9	2.1 B.	Removed No. 5 Making Room (ID No. 5MR) and bagfilter (ID No. BF5MR) as requested.
21 – 27	16 – 20	2.1 G.	Updated GACT ZZZZ conditions to latest version for spark ignition engine with vacatur of emergency demand response.
27 – 31	20 - 24	2.1 H.	Updated GACT ZZZZ conditions to latest version for compression ignition engine with vacatur of emergency demand response.
35-36	26-27	2.2 A.2. Table & conditions	Updated HAP major avoidance condition to limit facility-wide HAP to < 10 tpy for each HAP and < 25 tpy for total HAP including testing the brick kiln (ID No. 6BK) and associated emission calculation formulas
37-47	28-37	3. General Conditions	Updated General Conditions with the latest version (5.3)

ATTACHMENT TO REVIEW OF APPLICATION NO. 8000039.19A

Application Review dated 12/06/2018 (J. Tisdale)

V. Regulatory Review

The facility is subject to the following regulations:

15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes
15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources
15A NCAC 02D .0521, Control of Visible Emissions
15A NCAC 02D .0524, NSPS 40 CFR Part 60 Subparts OOO and UUU
15A NCAC 02D .1100, Control of Toxic Air Pollutants (*State-Enforceable Only*)
15A NCAC 02Q .0711, Toxic Air Pollutant Procedures (*State-Enforceable Only*)
15A NCAC 02D .1806, Control of Odorous Emissions (*State-Enforceable Only*)
15A NCAC 02Q .0317, Avoidance of MACT 02D .1111 MACT for Brick Manufacturers
15A NCAC 02Q .0504, Option for Obtaining Construction and Operation Permit

Only updates to those applicable regulations specifically 15A NCAC 02D .1100 and 02Q .0317 and .0711 (no new or additional requirements) have been added to the permit. Therefore, a regulatory review will be only for the kiln and rotary wood dryers affected by these revisions.

- A. 15A NCAC 02D .1100, Control of Toxic Air Pollutants (*State-Enforceable Only*)
15A NCAC 02Q .0711, Toxic Air Pollutant Procedures (*State-Enforceable Only*)

See Section VII. below for further details.

- B. 15A NCAC 02Q .0317, Avoidance of MACT of 02D .1111 MACT for Brick Manufacturers

HAP emissions from the facility shall be less than the major source thresholds of 10 tpy for each individual HAP and less than 25 tpy of cumulative HAP. Previously Meridian's resulting HF emissions were estimated to be greater than the HAP major source threshold of 10 tpy. As a result, Meridian filed an application (8000039.17B) to remove the HAP minor limitation; however, during the development of the SOC between DAQ and Meridian that would ensure compliance with the TAP limits for HF, the compliance option of venting the rotary wood dryers (6RWD or 5RWD) to DIFF1 would be an unacceptable engineering option because wet gases from the rotary wood dryers would corrode the stack. On December 5, 2017, Meridian submitted a letter to DAQ containing the compliance option of fuel conversion from wood to natural gas at the facility. Then on January 12, 2018 Meridian submitted a permit application (8000039.18A) that will convert the kiln (6BK) while reducing HAP emission less than the HAP major thresholds. Also, the two rotary wood dryers (5RWD and 6RWD) that have historically utilized the kiln exhaust to dry the sawdust will now be fired with natural gas in the existing shared burner since only small amounts of sawdust will be dried for brick coating. Source testing on the kiln (6BK) will be conducted to ensure compliance.

VI. NSPS, NESHAP, PSD, Attainment Status, 112(r), CAM

NSPS

The facility is currently subject to New Source Performance Standard (NSPS) Subparts OOO and UUU.

NESHAP/MACT

The facility which is minor for HAPs is subject to GACT Subpart ZZZZ for the emergency engines.

PSD

This facility is currently minor for PSD purposes. Rowan County has triggered increment tracking under PSD for PM10, SO₂, NO_x, and PM2.5. This modification will result in a decrease in 0.24 pounds per hour of PM10 and PM2.5.; however, this permit modification does not consume or expand increments for SO₂ and NO_x.

ATTACHMENT TO REVIEW OF APPLICATION NO. 8000039.19A

Application Review dated 12/06/2018 (J. Tisdale)

Attainment Status

This facility is located in Rowan County which is currently in attainment for all pollutants.

112(r)

This facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in the Rule.

CAM

40 CFR 64 requires that a continuous assurance monitoring plan be developed for all equipment located at major facilities that have pre-controlled emissions above the major source threshold and use a control device to meet an applicable standard. During the last permit renewal the facility evaluated each source for CAM applicability and has determined that the sources either do not have a control device to meet compliance with an emission limit or a standard for a federally regulated pollutant or the sources have uncontrolled potential emission of less than 100 tons. Therefore, CAM does not apply to this facility at this time.

VII. Facility-wide Air Toxics

Meridian submitted this permit application (8000039.18A) including atmospheric dispersion modeling that showed compliance with 15A NCAC 02D .1100 (Control of TAPs) and especially with the 24-hour standard for HF emissions (see Ms. Nancy Jones' Dispersion Modeling Review dated March 5, 2018). The final Special Order by Consent (SOC 2018-001) detailed history of compliance options and requires compliance on or before December 25, 2018. During the term of the SOC which expires December 31, 2018, Meridian agreed to limit production for the kiln (6BK) to 595 tons of fired brick per day and to keep onsite records to ensure compliance. Contingent upon issuance of this resulting permit for conversion of kiln (6BK) to natural gas firing, Meridian shall discontinue wood firing in the kiln (6BK) on or before December 25, 2018. Meridian shall demonstrate compliance with the emission limits by testing the natural gas-fired brick kiln (6BK) controlled by the dry lime injection fabric filter (DIFF1) for hydrogen chloride and hydrogen fluoride in accordance with a testing protocol approved by the DAQ. Testing shall be completed and the results submitted within 180 days of commencement of firing natural gas in the kiln unless an alternate date is approved by the DAQ. Therefore, the issuance of the resulting revised permit including the conversion to natural gas firing in the kiln (6BK) and dryers (6RWD and 5RWD) will show compliance with the optimized TAP permitted emissions rates and limits.

VIII. Statement of Compliance

The DAQ has reviewed the compliance status of this facility. Based on visual observations and review of records at the time of the inspection on May 10, 2018 by Ms. Melinda Wolanin of DAQ's MRO, this facility appeared to be operating in compliance with Air Quality standards and regulations aside from the TAP emissions compliance (see SOC 2018-001) and for not conducting the annual maintenance on natural gas-fired emergency engine (ES-2) and diesel-fired emergency generator (ES-3). As a result, Meridian received a Notice of Violation (NOV) from DAQ's MRO on June 5, 2018.

IX. Stipulation Review

The permit modification/changes (where needed) were incorporated into the permit (see table of changes in Section IV of this document).

X. Public Notice / EPA and Affected State Review

No public notice nor EPA and Affected State review was required for this permit modification. A 30 day public notice and EPA 45 day review will be performed during the second step of the two-step process for this modification.

ATTACHMENT TO REVIEW OF APPLICATION NO. 8000039.19A

Application Review dated 12/06/2018 (J. Tisdale)

XI. Conclusions, Comments, and Recommendations

1. A professional engineer's seal was required for this modification and the application was sealed by Ms. Dana Norvell, P.E. Seal No. 028884, on January 11, 2018.
2. A consistency determination was required for this modification and approved by Mr. Joseph Morris, Zoning Administrator for the Town of East Spencer, on January 10, 2018.
3. MRO requested a DRAFT permit review prior to issuance. The DRAFT permit to Ms. Melinda Wolanin of MRO on November 29, 2018. One minor typo comment was received. MRO recommends issuance of the permit.
4. The DRAFT permit was sent to Meridian officials and their consultant, Mr. Dale Overcash of Trinity Consultants, on November 30, 2019. A few comments were received on December 5, 2018 with the most noteworthy one including statements in the Avoidance of Being a Major HAP source condition (Section 2.2 B. of the permit) about the beginning compliance documentation on December 26, 2018 that coincides with the beginning of the conversion to natural gas firing in the kiln (ID No. 6BK). The other comments were the minor citation or typo type. RCO concurs with Meridian's comments, and minor changes were made to the DRAFT permit.
5. RCO concurs with MRO's recommendation to issue air permit No. 04034T22.